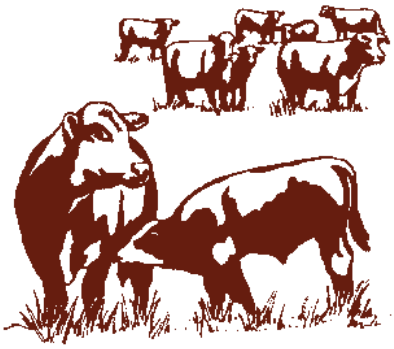
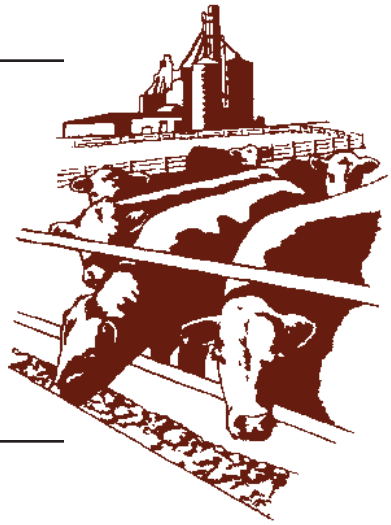


# Beef Cattle Handbook



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## Infectious Bovine Rhinotracheitis

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Infectious Bovine Rhinotracheitis (IBR or red-nose) was first recognized as a specific disease syndrome in Colorado feedlot cattle in the early 1950's, and the first clinical description of the disease was published in 1955. The virus was among the first to be definitely associated with bovine respiratory disease.

The origin of IBR is not definitely known. An IBR virus was first described as the causative agent in a mild genital infection (vesicular vaginitis) observed in eastern dairy cattle in the late 1940's. This virus was presumed to be the same virus causing a genital disease of cattle indigenous to Europe for many years.

### Etiology

The IBR virus is of the Herpes group. As is characteristic of many Herpes viruses, the IBR is capable of producing a variety of clinical disease forms according to which tissues of the animal body it infects. In general, this virus produces five clinical forms of disease in cattle—respiratory, ocular, abortion, infectious pustular vulvovaginitis, and encephalitis.

### Distribution and Transmission

IBR has worldwide distribution and is one of the most common virus infections of cattle in the United States. It is found wherever cattle are maintained. Estimates are that approximately 50 percent of the adult cattle population has had experience with this disease.

Wherever cattle are confined, or groups are permitted to commingle as in feedlots and collection points, the disease is rapidly spread to new arrivals from cattle already infected or those recovered carriers that serve as virus reservoirs and shedders of infection. IBR infection is spread primarily by airborne or contact transmission.

Other methods of spread are coital, infectious pustular vaginitis, in utero, and congenital by passage of the newborn through the infected vagina at the time of calving. The method of transmission is not always clear since it has been diagnosed in dairy and beef herds maintained under closed herd conditions.

Since the IBR virus may exist in an animal having circulating antibodies, and be isolated periodically from healthy recovered animals, carrier or spreader animals are a source of infection. Other diseases or periods of stress may reactivate latent infections, thus resulting in virus shedding and transmission of infection.

### Symptoms

Clinical symptoms depend on the tissues infected, the severity of the infection, and the resistance of the animal. The incubation period is usually 4 to 6 days with the entire herd involved and the infection lasting for 10 to 14 days.

### Respiratory Form

Clinical symptoms of the respiratory form of IBR are: an initial high fever of 104° to 107°F accompanied by a red nose (inflammation of the muzzle and nostrils). There is loss of appetite, depression, difficult or rapid respiration, and a profuse nasal discharge. The nasal discharge progresses from clear and watery to a sticky, yellow discharge that hangs in long strands from the nose. Usually there is an early clear, watery discharge from the eyes, which later becomes sticky as the inflamma-

tion of the eyelids develops.

The respiratory form of IBR is usually a herd infection with all animals in the group involved. Since only the upper respiratory tract involving the nasal turbinates, sinuses, pharynx, larynx, and trachaea are affected, a dry, nonproductive hacky cough is noted. Death is uncommon unless the disease is complicated by secondary infections due to the stresses of a severe winter or unusually hot weather.

In neonatal calves up to 3 weeks old, a fatal blood poisoning may occur. These calves develop a generalized disease with respiratory distress, small ulcers of the lining of the forestomachs, and peritonitis.

### Ocular Form of IBR

The ocular form of IBR may occur together with the respiratory form, or as a distinct clinical entity manifested only as a severe conjunctivitis (inflammation of the eyelids). Early excessive tear production may give the eye a clean-scrubbed appearance while the rest of the facial area is dirty due to dust accumulation on haired areas wet by tear overflow. Although copious ocular discharges occur and the edges of the eyelids may show a crusty exudate, corneal opacity (white spot in eye) is rarely seen. When corneal opacities do develop, they are usually an extension from the conjunctivitis and not a primary lesion. Ocular IBR should be differentiated from classical pinkeye, which starts in the center of the cornea. Isolation of IBR virus from cases of pinkeye and cancer eye has led to speculation that this virus may be involved in those diseases. Other evidence discredits this theory, however.

### IPV (Infectious Pustular Vaginitis)

With this form of IBR, the female shows a slight temperature elevation and a whitish discharge from the vulva. The tail is usually held in an elevated position and excessive tail switching is noted. In dairy animals, a marked temporary reduction in milk flow is noted. Upon spreading the vulvar lips, red spots and discrete pustules may be noted, and in advanced cases, an intensely red vaginal mucosa can be seen. The course of IPV is usually 2 to 3 weeks, and abortions or respiratory symptoms are not present. In the male there is an inflammation of the prepuce and the penis with pustular lesions and a preputial exudate.

### IBR Abortion

Abortion from IBR virus may result from natural infection, or as a result of some modified-live virus (MLV) vaccines being given to pregnant animals or animals in contact with IBR-susceptible pregnant animals. In utero infection of the fetus may occur at any stage of gestation, but most IBR abortions occur at about 5 to 6 months of gestation. The dam usually appears healthy, and there are no signs of impending abortion. Abortion occurs as a result of fetal death, and the fetus is usually partially decomposed. Such animals usually breed back with no particular problems.

### Diagnosis

Since several respiratory diseases of cattle present similar clinical symptoms, diagnosis depends on careful observation for lesions, exclusion of other diseases, and use of appropriate laboratory procedures. A presumptive diagnosis can be made on the basis of history, clinical signs, and the presence of intense nasal hyperemia or the presence of necrotic debris or plaques in the nasal passages. Paired acute and convalescent serum samples taken 3 weeks apart should show a negative to positive or a rise in SN antibody titer. From the live animal, nasal or ocular swabs may be taken for virus isolation studies. From the dead animal, bronchial lymph nodes or tracheal tissue may be submitted. The aborted fetus is usually autolyzed and shows no typical gross lesions. Fixed samples of fetal liver and kidney should be submitted for histopathological study since the IBR virus produces lesions of necrotic foci in these organs. Frozen sections of the placenta, liver and kidney, and fluid from the fetal thoracic cavity are also recommended for viral isolation study.

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